



US005487186A

United States Patent [19]
Scarpa

[11] **Patent Number:** **5,487,186**
[45] **Date of Patent:** **Jan. 23, 1996**

[54] **AUTOMATIC FREQUENCY CONTROL
USING SPLIT-BAND SIGNAL STRENGTH
MEASUREMENTS**

5,282,227 1/1994 Crawford 455/258
5,289,506 2/1994 Kitayama et al. 375/97

- [75] Inventor: Carl G. Scarpa, Edison, N.J.
[73] Assignee: Hitachi America, Ltd., Tarrytown, N.Y.
[21] Appl. No.: 368,747
[22] Filed: Jan. 4, 1995

Related U.S. Application Data

- [63] Continuation of Ser. No. 83,630, Jun. 28, 1993, abandoned.
[51] Int. Cl.⁶ H04B 1/16
[52] U.S. Cl. 455/192.2; 455/182.2;
455/258; 375/344

- [58] **Field of Search** 375/344, 97

[56] **References Cited**

U.S. PATENT DOCUMENTS

- 4,523,324 6/1985 Marshall 375/97
4,896,336 1/1990 Henely et al. 375/97
5,150,382 9/1992 Kume 375/97
5,208,835 5/1993 Weeks et al. 375/97
5,251,218 10/1993 Stone et al. 455/324

FOREIGN PATENT DOCUMENTS

0300491 1/1989 European Pat. Off. .

Primary Examiner—Reinhard J. Eisenzopf
Assistant Examiner—Thanh Le
Attorney, Agent, or Firm—Peter L. Michaelson

[57] **ABSTRACT**

A technique for maintaining a center frequency of an input signal at a nominal center frequency. Apparatus which implements this technique divides, using a pair of bandpass filters (122, 124), the modulation bandwidth of the input signal into two halves (half-bands) and measures the signal strength of the input signal in each half-band. Then, circuitry (126, 128, 130), connected to each filter, compares the signal strengths of the signals passing through each filter. The circuitry produces a difference signal representing a difference between the strength of each signal passing through each respective filter. The difference signal is used to adjust a frequency of a local oscillator signal produced by a local oscillator (112) within a tuner (104) such that the center frequency of the input signal is maintained by the tuner at the nominal center frequency.

22 Claims, 5 Drawing Sheets

